

Are "Super Singles" Good For Your Roads?

"Super Singles" can cause three times more damage to your roads

What are "Super Singles"?

First, "Super Singles" are NOT a new type of singles or dating club. Rather, a "Super Single" is an individual tire which replaces two conventional truck tires. As shown in Figure 1b, the "Super Single" tire is wider than an individual standard truck tire. This makes an 18 wheel tractor trailer (one axle with two tires, four axles with four tires, two on each end) into a ten wheeler (two tires on each of the five axles). "Super Single" tires are used to simplify tire maintenance, and are becoming popular for use on lumber trucks and ready-mix trucks.

How do "Super Single" tires compare to standard dual tires?

Unfortunately, trucks using "Super Single" tires cause nearly three times as much road damage as a similarly loaded trucks with conventional dual tires.

While the "Super Single" Tire is wider than an individual standard truck tire, it is narrower than a pair of tires. The result is that the forces on the road from the "Super Single" tire are concentrated over a much smaller area compared to conventional dual tires, which results in higher pavement stresses and much greater road damage.

This increase in damage has been correlated by road deterioration tests conducted at the FHWA Turner-Fairbanks Highway Research Center in McLean, Virginia, on asphalt pavement. As shown in Figure 2b, these tests indicate that when loaded to 18,000 pounds per axle, the truck with "Super Single" tires causes tremendously more damage than the truck with conventional dual tires. What was even worse, was that the difference between the two increased significantly with additional traffic.

How do you deal with them?

There are several possible ways of dealing with "Super Single" tires. First, you could ban trucks with "Super Single" tires from your town roads. Second, if banning is not practical, you could institute weight restrictions for any truck using "Super Single" tires. A truck with "Super Single" tires should be loaded at most to approximately 3/4 as much weight as a truck with

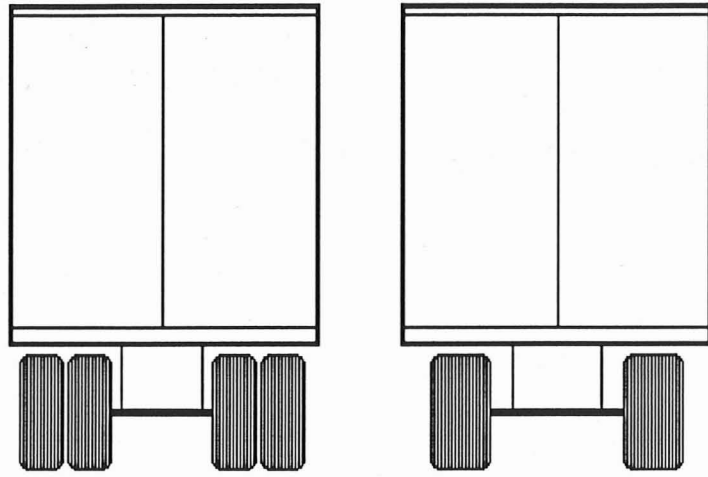


Figure 1b: Visual comparison between standard dual tires and super single tires

Rut Depth (Inches)

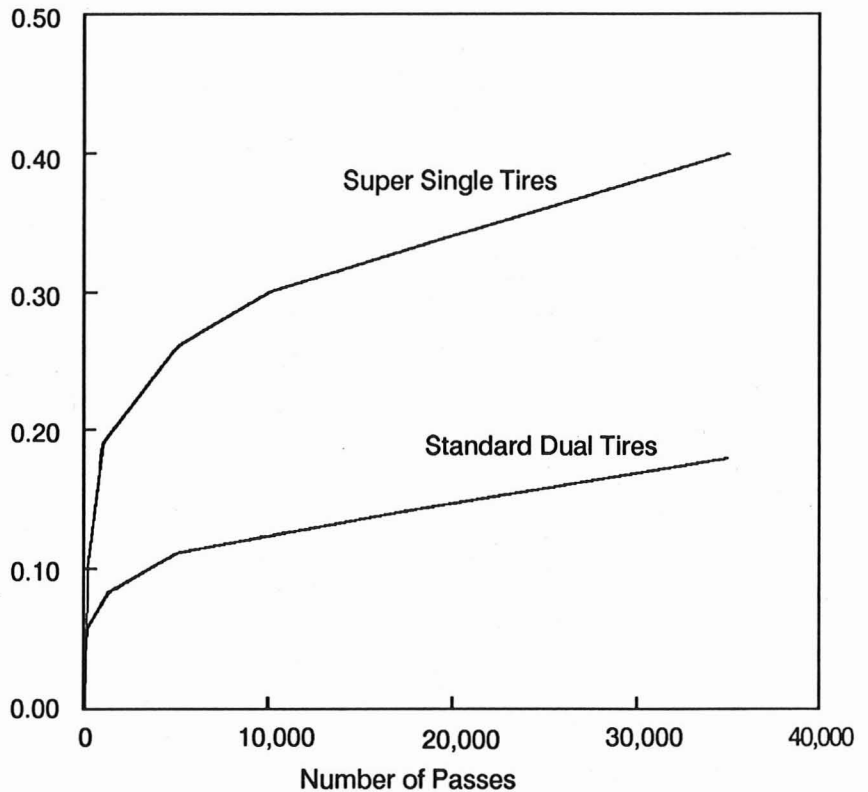


Figure 2b: Rutting caused by truck tires -- trucks loaded to 18,000 lb/axle (from FHWA Turner-Fairbanks Research Lab.)

conventional tires. This guideline can be used to help insure that trucks with "Super Single" tires cause no more damage than those with conventional tires. Finally, you could require the trucks with "Super Single"

tires to post road bonds to provide for future road maintenance.

The above article was written by Edwin Schmeckpeper, T² Center Engineer. ●